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of the respective tooth and is oriented at an acute angle with respect to a remaining portion of the respective side of the tooth for reducing an effective dust gap of the tooth.

49. (New) The band saw blade as defined in claim 49 wherein the relief portion is oriented at an angle within the range of approximately 0° and approximately 2° with respect to a plane defined by an unset tooth.

REMARKS

Applicant has amended claims 12 and 23; claims 1-5, 7-14, and 21-47 remain pending in this application; and new claims 48 and 49 have been added. Claims 12-14 have been allowed. The undersigned thanks Examiner Dexter for courteously discussing this application during the recent telephonic interview. For the reasons discussed during the interview and summarized in further detail below, it is respectfully submitted that 1-5, 7-11 and 21-49 also are allowable.

Drawing Corrections

The Examiner has approved the proposed drawing corrections made to Figures 1 and 4 on November 20, 2002. In accordance with 37 CFR § 1.121(d), submitted herewith are clean copies of Figures 1 and 4 as amended.

Rejection under 35 U.S.C. § 112

Claims 23 and 24 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

Applicant regards as the invention. In view of the above amendments, it is respectfully submitted

that this ground for rejection has been obviated.

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Rejection under 35 U.S.C. § 103

Claims 1-5, 7-11 and 21-40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over RE31,433 to Clark in view of U.S. Pat. No. 820,969 to Grellck. The Examiner states at paragraph 6 of the Action (page 4): "it would have been obvious to one having ordinary skill in the art to provide such shelves on the band saw of Clark '433 at least for the benefits taught by Grellck." The Examiner's grounds for rejection are hereinafter traversed, and reconsideration is respectfully requested.

To establish a *prima facie* case of obviousness, the following criteria must be met:

(1) There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the teachings of the references; (2) There must be a reasonable expectation of success found in the prior art, not the applicant's disclosure; and (3) The prior art references must teach or suggest all of the claim limitations. M.P.E.P. § 2142. "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." M.P.E.P. § 2141.02, citing W.L. Gore & Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983), cert. denied, 496 U.S. 851 (1984). Further, prior art references that are not analogous art are not properly combinable under § 103. A reference is not analogous art if it is not within the inventor's field of endeavor and is not reasonably pertinent to the problem with which the inventor was involved. In re Clay, 966 F.2d 656 (Fed. Cir. 1992).

First, there is no suggestion or motivation in the prior art to modify Clark '433 to include the shelves of Grellck, as suggested by the Examiner. Clark '433 is directed specifically to metal cutting band saw blades. Clark '433 states: "The present invention relates to saw blades of the type used for cutting metal workpieces, such as band saw blades and hack saw blades." (Clark '433 at column 1, lines 10-12, *emphasis added*). Further, Clark '433 is directed to

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addressing problems unique to metal cutting saw blades, including "reduced cutting noise and chatter, reduced vibration and smoother running". (Clark '433 at column 1, lines 47-40).

In stark contrast to Clark '433, Greck is directed to wood cutting saw blades, and to addressing "the fact that sawdust settles at the surfaces of cutting of the wood." (Greck at column 1, lines 8-10). In Greck's wood cutting saw blade "the front of the saw-tooth is provided with one or more projections, which act as sawdust-removers and remove the sawdust as it is produced" (Greck at column 1, lines 11-15). More specifically, Greck teaches setting only the tips of the teeth "so that the thickness of the cut and the loss of material caused thereby are smaller", and forming the sawdust removing projections below the bend plane of the tips on the "front or cutting edge" of each tooth. (Greck at column 1, lines 20-23, and column 2, line 40).

Thus, Clark '433 is directed to cutting metal workpieces and is not concerned in any way with the problems associated with cutting wood and removing sawdust from the kerf when cutting wood. Greck, on the other hand, is directed to cutting wood, and to providing "tip set" teeth and sawdust removing projections below the bend plane of the teeth to remove sawdust when cutting wood. Greck is not concerned in any way with cutting metal workpieces or the problems associated with cutting such workpieces. Therefore, there is no suggestion or motivation in either of the references to apply Greck's sawdust removing projections, which are usable only for removing sawdust when cutting wood, to Clark's metal cutting saw blade, which is not used to cut wood. Why would one of ordinary skill in the art want to use Greck's saw dust removing projections on Clark's metal cutting saw blade? Clearly, there is no reasonable basis for concluding that one of ordinary skill in the art would think to do so. The prior art references do

~~not teach or suggest modifying Clark '433 in view of Greck as suggested by the Examiner, and~~

~~therefore it is respectfully submitted that the Examiner has not established a prima facie case of~~

~~obviousness for at least this reason.~~

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Further, there would be no reasonable expectation of success in applying Greleck's sawdust removing projections to Clark's metal cutting saw blade. Indeed, both Greleck and Clark '433 effectively teach away from the proposed combination. Each prior art reference must be considered in its entirety, including those portions that would lead away from the claimed invention. M.P.E.P. § 2141.02. As set forth above, Clark '433 is directed to cutting metal workpieces, not wood. One of the objects of Clark's invention is to obtain optimum operating characteristics for cutting metal workpieces, "such as reduced cutting noise and chatter, reduced vibration and smoother running, less heat generation, and longer blade life". (Clark '433 at column 1, lines 46-51). In order to achieve this, and as shown typically in FIG. 3, Clark '433 teaches the formation of open gullets 20 and relatively long rake faces 22. Clark further teaches progressively decreasing the gullet depth and pitch of the teeth, and progressively increasing the positive rake angles for the teeth of lesser gullet depth "so that the smaller teeth are rendered more able to dig in and remove a larger chip more comparable in size to that removed by the larger teeth". (Clark '433 at column 3, lines 58-63). Thus, Clark's blade is designed so that it "not only increases the overall cutting speed, but also balances out the impacts on the individual teeth resulting in the improved smooth and quiet operation which characterizes the blades of [his] invention." (Clark '433 at column 3, lines 63-66).

To modify Clark's saw blade to include Greleck's saw-dust removing projections on each rake face or forward cutting edge 22 (FIG. 3) would be contrary to Clark's express teachings and destroy the benefits of his invention. Greleck's sawdust removing projections would increase cutting noise and chatter, increase vibration, and necessarily would cause the blade to not run smoothly and would reduce blade life. Greleck's sawdust removing projections would cause the teeth not only to produce smaller chips, but the reduction in chip load on the shorter teeth would be disproportionate to the reduction in chip load on the larger teeth, thereby further upsetting the

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balanced tooth loading specifically taught by Clark. Grellck teaches setting only the tips of the saw teeth and forming each projection below the bend plane, and therefore Grellck also teaches away from the claimed invention. The Examiner must consider each reference in its entirety, including those portions that lead away from the claimed invention, and it is respectfully submitted that when Clark '433 and Grellck are properly viewed in this manner, the rejection must be withdrawn.

Clark '433 is not analogous art to Grellck and cannot be modified in the manner suggested by the Examiner for this additional reason. The present invention is directed to wood cutting band saw blades. Why would one of ordinary skill in the art of wood cutting band saw blades look to Clark's: metal cutting saw blade when seeking to address the problems associated with removing saw dust from the kerf? Clark '433 is not within the field of wood cutting band saw blades. Rather, as set forth above, Clark '433 is directed specifically to metal cutting saw blades. Further, Clark '433 is not reasonably pertinent to the problem with which the present inventor was involved. As set forth at page 4 of the present specification, the present invention addresses the problem of reducing the quantity of saw dust passing through the dust gap and minimizing the collection of sawdust on the kerf walls and sides of the saw blade. (Amended Specification at page 4, lines 1-3). Clark '433 does not relate in any way to cutting wood, much less addressing the problem of reducing the collection of sawdust on the kerf walls and/or sides of the saw blades. Thus, Clark '433 is not within the present inventor's field of endeavor and is not reasonably pertinent to the problem with which the present inventor was involved. See In re Clay, 966 F.2d 656 (Fed. Cir. 1992) (a reference is not analogous art if it is not within the inventor's field of endeavor and is not reasonably pertinent to the problem with which the inventor was involved). Thus, Clark '433 is not analogous art and cannot be modified by Grellck in the manner suggested by the Examiner for these additional reasons.

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Even if it were proper to modify Clark '433 in view of Grellck in the manner suggested by the Examiner, which Applicants respectfully dispute, the resulting combination would not meet the terms of the claimed invention. As set forth above, Grellck teaches setting only the tips of the saw teeth and forming each projection below the bend plane. Thus, if one were to modify Clark's blade to include Grellck's sawdust removing projections, the teeth necessarily would be tip set and the projections would be located below the bend plane, as taught by Grellck. There is no teaching anywhere in the references of record to form a shelf or like projection at least partially between the tip and bend plane for reducing saw dust passing to the kerf and accumulating on the band saw blade. The Examiner states that this combination is "old and well known". However, it is respectfully submitted that this conclusion can be reached only through impermissible hindsight reconstruction. Nowhere do any of the cited prior art references teach or suggest forming a shelf or like projection at least partially between the tip and bend plane as recited in the presently amended independent claims.

It is important to point out that one of the advantages of the band saw blade of the present invention is that because the shelf is formed at partially between the tip and bend plane, the teeth may define relatively "heavy sets" without reducing the effective dust gap. In other words, the shelf is moved laterally outwardly with the portion of the tooth that is set. This feature is particularly advantageous when cutting wet and/or frozen wood where "heavy" sets may be required to effectively cut such workpieces. Neither Clark '433 nor Grellck recognize the problems associated with cutting such wet and/or frozen wood, much less teach the solution of the invention, as recited in independent claims 1 and 27.

The Final Action states at page 4, paragraph 6 that "it is noted that the claims are equally unpatentable over Grellck in view of Clark '433". Although it is believed that this alternative ground for rejection is overcome for the reasons set forth herein, this constitutes a new

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ground for rejection and the Action cannot be made final. As set forth at M.P.E.P. § 706.07(a), an action cannot be final "where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement." Here, this alternative ground for rejection was introduced for the first time in the Final Action, and was not necessitated by any amendment or information disclosure statement submission. For example, independent claim 1 stands rejected on this basis, independent claim 1 has never been amended, and therefore this new ground for rejection with respect to claim 1 could not have been necessitated by an amendment. It is therefore respectfully submitted that if the Examiner does not issue a notice of allowance, but rather wishes to maintain this new ground for rejection, that such rejection should be set forth in a new non-final action.

As also discussed during the interview, the references of record do not teach or suggest means located at least partially between the tip and the bend plane for effectively reducing the dust gap dimension, including at least one shelf and a relief portion extending from the tip of the respective set tooth at an acute angle to a transverse axis of the saw blade, as recited in claim 36. Similarly, none of the references of record teach or suggest a wood cutting band saw blade including a shelf located at least partially between the tip and the bend plane for reducing saw dust passing to the kerf and accumulating on the band saw blade, in combination with (1) a relief portion extending from the tip and having a relief angle (RA) within the range of approximately 0° to approximately 2°, as recited in claim 21, or (2) such a relief portion defining a tangential angle (TA) within the range of approximately 3° to approximately 6° with respect to the side of the blade body, as recited in claim 22. As described at page 10 of the present application, the claimed relief portion, shown typically at 244' in FIG. 5, further reduces the effective dust gap from "EDG" to "EDG-1". This feature is neither taught nor suggested by any of the references of record, and therefore these dependent claims are unobvious over Clark '433 in view of Greick for this

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additional reason. The Examiner noted during the interview that these limitations might be readable on any relief surface. However, it is important to note with respect to claim 36, that this feature is part of the "means for effectively reducing the dust gap dimension", and further, that the claim defines the acute angle with respect to a "transverse axis of the saw blade" (as shown, e.g., by the axis "A" in FIG. 2). Other types of relief surfaces, such as the relief surface 22 in FIG. 1, do not function to reduce the dust gap dimension and are not oriented at acute angles with respect to a transverse axis of the saw blade.

New claims 48 and 49 depend from independent claims 27, are commensurate in scope with claims 21 and 36, do not raise any new issues, and therefore should be entered and are allowable over the cited references for the same reasons as claims 21 and 36.

Dependent claims 3, 31 and 38 recite a ratio of $S1/B$ within the range of approximately 0.25 to approximately 0.75. Similarly, claim 47 recites $S1$ being approximately $1/3$ D. These features likewise are neither taught nor suggested by the references of record. One of the advantages of these claimed features is that they enable the blade to prevent choking and provide a desired effective dust gap. (Original specification at page 7, lines 14-20). Neither Clark '433 nor Grellck teach the formation of an effective dust gap, much less one that prevents choking. Rather, in Grellck, the saw dust projections are not set, but rather are located below the bend plane on the unset portions of the teeth. Accordingly, neither Clark '433 nor Grellck recognize the problem of both reducing the effective dust gap and preventing choking, much less teach the solution to this problem as recited in claims 3, 31, 38 and 47. It is therefore respectfully submitted that these claims likewise are not rendered obvious over Clark' 433 in view of Grellck for these

additional reasons.

With respect to claims 41-47, two of these claims are not directed to the non-elected subject matter. Specifically, claims 42 and 47 are not directed to the non-elected subject.

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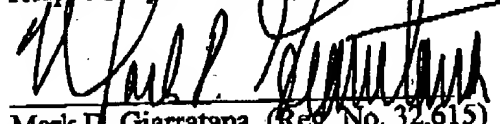
matter, and therefore should not be withdrawn from consideration. The other claims (41 and 43-46) only should be withdrawn pending allowance of a respective generic claim, at which time these claims should be allowed along with the respective generic claim.

Accordingly, it is respectfully submitted that claims 1-5, 7-11 and 21-49 are allowable in addition to already allowed claims 12-14. All issues raised by the Examiner having been addressed, an early action to that effect is earnestly solicited.

No fee in addition to that submitted herewith is believed to be required; however, if an additional fee or petition is required, or otherwise if necessary to cover any deficiency in fees already paid, authorization is hereby given to charge our deposit account no. 50-1402 and/or please consider this a petition therefor.

If the Examiner wishes to discuss any of the issues herein, or otherwise if it would facilitate the examination of this application, he is respectfully requested to call the undersigned at the telephone number below.

Respectfully submitted,



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